

Applicant: Balint et al.
Application No.: 10/506,852
Art Unit: 1791

In the Claims:

Please amend the claims as follows:

1. (Currently amended) A process for making an injection molded part ~~being made of different materials comprising the steps of:~~

~~— a) —~~ providing using a press, and a mold with a cavity block, and a moveable core block, a parting line defined at a junction between the cavity block and the moveable core block, at least one injection nozzle[[s]], a moveable-stationary inner insert and at least one spacer mechanism that is moveable relative to the core[;], wherein the cavity block and the moveable core block are moveable relative to the stationary inner insert, comprising:

~~ba)~~ maintaining-closing the parting line of the mold closed until said part is complete between the cavity block and the moveable core block;

~~eb)~~ setting said-at least one spacer mechanism to a first shot position to locate the cavity block and the moveable core block to a first shot position relative to the stationary inner insert to a first shot position;

~~ec)~~ closing said moldthe press to a first shot position to set a predetermined shut height;

~~ed)~~ applying clamp tonnage to the pressmold;

~~fe)~~ injecting a plastic of at least one type first quantity of material to create a first partportion of the injection molded part while keeping the parting line closed;

~~gf)~~ releasing the clamp tonnage while keeping the parting line closed;

~~hg)~~ opening the press to a predetermined position while maintaining-a closedkeeping the parting line closed;

~~ih)~~ setting said-at least one spacer mechanism to a second shot position to secure the cavity block and moveable core block in a second shot position relative to the stationary inner insert, while keeping the parting line closed;

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ji) closing press to a second shot position while keeping the parting line closed;and

j) reapplying the clamp tonnage to the press while keeping the parting line closed;

k) ~~[[I]]~~injecting plastic of another type a second quantity of material to create a second ~~part~~portion of the injection molded part while keeping the parting line close; and

l) opening the press and the parting line and ejecting the completed injection molded part.

2. (Currently amended) The process as claimed in claim 1, ~~wherein the inner insert~~further comprising positioning the moveable core is locatable between to first and second positions and other positions relative to the stationary inner insert to create multiple colors or material portions of the injection molded part[[s]].

3. (Currently amended) The process as claimed in claim 1, further comprising the ~~step of~~controlling a cycle time of the process to enhance bonding of the materials being molded.

4. (Canceled)

5. (Currently amended) The process as claimed in claim 1, further comprising the ~~step of application~~placing at least one of part inserts of metal or film into a cavity between the cavity block and the moveable core block before closing the parting line.

6. (Currently amended) The process as claimed in claim 1, wherein the completed injection molded part has at least two different colors.

7. (Currently amended) The process as claimed in claim 1, wherein the completed injection molded part has at least two different materials.

8. (Currently amended) The process as claimed in claim 1, wherein the first and second ~~parts~~portions of the injection molded part are joined at an interface.

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9. (Currently amended) The process as claimed in claim 1, wherein the first and second ~~parts~~ portions of the injection molded part are overlaid.

10. (Currently amended) The process as claimed in claim 1, wherein ~~said at least one of the at least one spacer mechanism sets the a size of a gap for that shot wall thickness for each of a first and second shot wall thickness.~~

11. (Currently amended) The process as claimed in claim 1, wherein the process utilizes four spacer mechanisms usable to move the inner insert to position the moveable core in a desired position relative to the stationary inner insert.

12. (Currently amended) A method for making an ~~multi-material~~ injection molded part ~~comprising the steps of:~~

——— a) ——— ~~providing~~ using a mold with a cavity block, a moveable core block, a parting line defined between the cavity block and the moveable core block, at least one injection nozzle[[s]], a moveable stationary inner insert movable relative to a core, and a set of spacers mechanisms for moving the inner insert; usable to position the moveable core relative to the stationary inner insert, comprising:

_____ a) _____ applying clamp tonnage to a mold;
_____ b) _____ injecting a first quantity of material into the mold;
_____ c) _____ releasing the clamp tonnage from the mold while keeping the parting line closed;

_____ ed) _____ advancing the set of spacers mechanisms to set the inner insert to to position the moveable core in a second shot position relative to the stationary inner insert while keeping the parting line of the mold closed; and

_____ e) _____ reapplying the clamp tonnage to the mold while keeping the parting line closed; and

_____ df) _____ injecting a second quantity of material into the mold.

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13. (Currently amended) The method for making an ~~an multi-material~~ injection molded part as claimed in claim 12, wherein the set of spacers mechanism sets at least one position that the molda press can be closed to.

14. (Currently amended) The method for making an ~~an multi-material~~ injection molded part as claimed in claim 12, ~~further comprising the steps of~~ wherein advancing the set of spacers comprises:

a) — closing the mold to the first shot platen position which adjusts the shut height;

— b) — applying tonnage to the mold;

— c) — releasing clamp tonnage after creating a first part;

— d) — opening platen to a predetermined position while maintaining a closed parting line;

— e) — setting the set of spacers mechanisms to a position that results in a relative change of position between the stationary inner insert and the first ~~set part~~ quantity of material injected into the mold while ~~maintaining a closed~~ keeping the parting line closed.

f) — closing mold to a second shot position;

— g) — applying tonnage to the mold;

— h) — opening the mold and ejecting a completed part after injecting the second material.

15. (Currently amended) A process of manufacturing a door panel having at least two different ~~eolored panels comprising of the steps of:~~

— a) — providing portions using a mold having a cavity block, a stationary inner insert and a moveable core block, and a parting line between the cavity block and the moveable core block, at least one injection nozzle [[s]], a moveable inner insert and a spacer mechanism

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that is moveable relative to ~~a~~the moveable core of the mold while maintaining a parting line of the mold closed until the process is complete~~[[;]], comprising of the steps of:~~

~~ba)~~ setting the spacer mechanism to a first shot position ~~which results in such that the moveable inner insert core block being set to is located at a first shot position relative to the stationary inner insert;~~

~~eb)~~ closing the parting line of the mold to the first shot position;

~~ec)~~ applying clamp tonnage to the mold;

~~ed)~~ injecting ~~plastic of at least one type~~a first quantity of material while maintaining the parting line of the mold closed to create a first part-portion of the door panel;

~~fe)~~ releasing the clamp tonnage while maintaining the parting line of the mold closed;

~~g)~~ ~~opening mold to a predetermined position while maintaining a closed parting line;~~

~~hf)~~ setting the spacer mechanism to a second shot ~~platen~~-position such that the moveable core block is located at a second shot position relative to the stationary inner insert while maintaining the parting line of the mold closed;

~~i)~~ ~~closing mold;~~

~~jg)~~ reapplying the clamp tonnage to the mold while maintaining the parting line of the mold closed;

~~kh)~~ injecting ~~plastic of another type~~a second quantity of material while maintaining the parting line of the mold closed to create subsequent sections-portions of the door panel; and

~~li)~~ opening the parting line of the mold and ejecting the door panel.

16. (Currently amended) The process as claimed in claim 15, wherein the first quantity of material~~[[s]]~~ and the second quantity of material have ~~a~~-different durometer ratings.

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17. (Currently amended) The process of claim 15, wherein the first quantity of material ~~[[s]] are of~~ and the second quantity of material have different colors.

18. (Currently amended) The process of claim 15, wherein ~~the materials are at least~~ one of the first quantity of material and the second quantity of material is comprised of soft-touch material.

19. (Currently amended) A process of manufacturing an injection molded part ~~being made of different materials, comprising the steps of:~~

—— a) —— providing using a mold with having a cavity block, a stationary inner insert and a moveable core block, wherein the moveable core block is moveable relative to the stationary inner insert, and the cavity block and the moveable core block define a cavity of the mold with a parting line between the cavity block and the moveable core block, at least two injection nozzles, a moveable inner insert and a set of spacer mechanisms that is are moveable relative to the moveable core block while keeping a parting line of the mold closed until the process is completed ~~[[;]], the process comprising:~~

ba) injecting into the cavity material forming a first portion of a the injection molded part with while the set of spacer mechanisms are located in a first position such that the moveable core is located at a first position relative to the stationary inner insert and while keeping the parting line of the mold closed;

eb) while keeping the parting line of the mold closed, removing a clamp tonnage, opening a press, the press comprising an upper clamp plate and a lower clamp plate, to a predetermined position, dumping clamp tonnage, and re-locating the set of spacer mechanisms to a second position, such that the moveable core is located at a second position relative to the stationary inner insert;

—— d) —— maintaining the parting line closed;

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 c) reapplying the clamp tonnage while keeping the parting line of the mold closed;

 ed) injecting into the cavity material forming a subsequent portion of the injection molded part while keeping the parting line of the mold closed; and

 f) opening the parting line of the mold and ejecting the injection molded part from the mold.

20. (Currently amended) The process as claimed in claim 19, further comprising ~~springs for~~ biasing the moveable core block away from the set of spacers to maintain the parting line of the mold closed.

21. (Currently amended) The process as claimed in claim ~~19~~20, wherein ~~means for~~ biasing the moveable core block maintains the parting line closed comprises applying a spring force from at least one spring against the moveable core block.

22. (Currently amended) A process for making an injection molded part ~~comprising the steps of:~~

 a) providing using a mold, the mold including a moveable mold core and defining a cavity and having a parting line between multiple parts, a stationary mold insert at partially within the cavity, material to be injected and a press[[]], the process comprising:

 ba) moving the insert relative to the moveable mold core to a first position relative to the stationary mold insert to provide room within the cavity for injecting a first quantity of material into the cavity;

 b) closing the parting line of the mold;

 c) applying a clamp tonnage to the mold while maintaining the parting line of the mold closed;

 ed) injecting a the first quantity of material into the cavity while maintaining the parting line of the mold closed;

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e) releasing the clamp tonnage while maintaining the parting line of the mold closed;

df) moving the ~~insert relative to the cavity~~ moveable mold core relative to the stationary mold insert to a second position to provide additional room within the cavity for injecting a second quantity of material while maintaining the parting line of the mold closed; and

g) reapplying the clamp tonnage while maintaining the parting line of the mold closed; and

ge) injecting a ~~the~~ second quantity of material into the cavity while maintaining the parting line of the mold closed.

23. (Canceled)

24. (Currently amended) The process as claimed in claim 22, wherein ~~the step of moving the insert~~ moveable mold core is accomplished by comprises moving an injection press platen supporting the moveable mold core.

25. (Currently amended) The process as claimed in claim 22, wherein ~~the step of moving the insert~~ moveable mold core is done by the press not by performed without using wedges integral to the mold.

26. (Currently amended) The process as claimed in claim 22, wherein the multiple parts of the moveable mold core stays are in physical contact with the cavity each other during the molding process to maintain the parting line closed.

27. (Currently amended) The process as claimed in claim 22, further comprising springs biasing a the multiple parts of the moveable mold core toward each other to maintain for maintaining the parting line shut closed during the process.

28. (Currently amended) The process as claimed in claim 22, further comprising ~~the step of shifting the insert~~ moving the moveable core to another a further position relative to the

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stationary mold insert and ~~molding~~ injecting an additional quantity of material[[s]] while maintaining the parting line of the mold closed.

29. (Currently amended) A ~~mold system~~ for making ~~a plastic an injection molded~~ part ~~made from multiple materials~~ comprising:

a pair of clamp plates;

a moveable core block ~~positioned adjacent to one of the clamp plates;~~

~~a moving spacer mechanism retainer plate for holding spacers in place;~~

a moveable cavity block ~~positionable~~ adjacent to the moveable core block, the moveable cavity block contacting the moveable core block at a parting line;

a[[n]] stationary inner-insert ~~mechanism assembly~~ positioned at least partially within the moveable core block, ~~the inner insert including retainer pins, retainer slides and slide holders;~~

a spacer mechanism retainer plate;

a spacer mechanism ~~for setting the~~ moveable relative to the spacer mechanism retainer plate and usable to maintain the position of the moveable core block relative to the stationary inner-insert mechanism;

at least one hydraulic cylinder for moving the spacer mechanism while a clamp tonnage is not applied to the mold;

a set of ~~parallel~~ members located on an upper side of the cavity block;

a manifold retainer plate located adjacent the ~~parallel~~ members;

an ejector retainer plate and an ejector plate located on an underside of the manifold retainer plate;

a first shot manifold assembly disposed within the manifold plate;

a second shot manifold assembly disposed within the manifold plate; and
ejector cylinders fixed to the manifold retainer plate.

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30. (New) The method of making an injection molded part as claimed in claim 12, wherein applying and reapplying the clamp tonnage to the mold each comprises closing a press against the mold and applying the clamp tonnage to the mold using the press, the method further comprising:

g) before a) applying the clamp tonnage to the mold; positioning the moveable core block of the mold to a first shot position and closing the parting line of the mold;

h) after c) releasing the clamp tonnage from the mold; opening the press to a predetermined position while keeping the parting line of the mold closed;

i) before e) reapplying the clamp tonnage to the mold; positioning the moveable core of the mold to a second shot position while keeping the parting line of the mold closed; and

j) after f) injecting the second quantity of material into the mold; opening the parting line of the mold and ejecting a completed part.